

***“Overview of Energy and  
Environmental Impacts of Proposed  
ENERGY STAR Spec for Computers”***



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# NRDC Approach

1. Focus on three product categories
  - Desktop computers
  - Laptop computers
  - Servers (“desk top derived”)
  
2. Assumptions:
  - *Unit sales based on 2003 IDC reports*
  - *Duty Cycles - Acknowledge different user behaviors in residential and commercial setting*
  
3. Assume no changes in current user power management enabling rates

# Per Unit Energy Savings

<b>Product</b>	<b>Annual Unit Savings (kWh per year)</b>	<b>Lifetime Unit Electricity Savings (dollars)</b>
<b>Commercial Desktop</b>	127	38
<b>Residential Desktop</b>	82	25
<b>Commercial Laptop</b>	64	19
<b>Residential Laptop</b>	39	12
<b>Server</b>	216	65

*Note: assumes \$0.10 per kWh electricity rates; 3 year computer lifetime*

# National Energy Savings Impacts @ 25% Penetration

<b>ENERGY STAR Computer Spec Impact - 25% Penetration</b>				
<b>Product</b>	<b>Unit Sales</b>	<b>Percent of units that meet ENERGY STAR that Year</b>	<b>Annual Unit Savings (kWh)</b>	<b>National Annual Savings (Millions of kWh)</b>
<b>Commercial Desktop Computer</b>	23,215,268	25%	127.3	739
<b>Residential Desktop Computer</b>	14,228,712	25%	82.1	292
<b>Commercial Laptop Computer</b>	9,482,292	25%	63.8	151
<b>Residential Laptop Computer</b>	5,811,728	25%	39.0	57
<b>Servers</b>	1,187,104	25%	215.8	64
<b>Annual Savings Total (millions of kWh)</b>				<b>1,302</b>

# If 100% of computers sold meet this spec...

<b>ENERGY STAR Computer Spec Impact - 100% Penetration</b>				
<b>Product</b>	<b>Unit Sales</b>	<b>Percent of units that meet ENERGY STAR that Year</b>	<b>Annual Unit Savings (kWh)</b>	<b>National Annual Savings (Millions of kWh)</b>
<b>Commercial Desktop Computer</b>	23,215,268	100%	127.3	2,954
<b>Residential Desktop Computer</b>	14,228,712	100%	82.1	1,168
<b>Commercial Laptop Computer</b>	9,482,292	100%	63.8	605
<b>Residential Laptop Computer</b>	5,811,728	100%	39.0	226
<b>Servers</b>	1,187,104	100%	215.8	256
<b>Annual Savings Total (millions of kWh)</b>				<b>5,209</b>

# Economic Benefits

	Annual Savings	Cumulative 3-Year Savings
If 25% of Sales	\$95 million	\$570 million
If 100% of Sales	\$380 million	\$2.3 Billion

# One-Year Environmental Benefits

	25%	100%
Tons CO <sub>2</sub> /yr	1.1 million	4.3 million
Equivalent # of Households	127,000	510,000*

\* > all households in Sacramento County, CA or Nassau County, NY.

# Big Picture

A 25% ESTAR adoption rate, will save:

*“Enough Electricity to power over 3 million of today’s typical desktop computers for a year.”*